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ABSTRACT

A review of the first 23 volumes of "AV Communication Review" identified 68 theoretical and experimental articles on the effects of media on student learning attitudes. Examination of these articles revealed that (1) researchers do not routinely evaluate the impact of mediated instruction on learner affect toward either the medium or the content information; (2) in most studies where attitudes were measured it was generally a post-hoc evaluation of peripheral importance to the main objectives of the study; (3) locally constructed measures of attitude were most often used, and few studies provided validity or reliability information for attitude measures; and (4) attitude change as a result of the use of media has not been a major area of research effort. Within the framework of the above limitations, it was concluded that less abstract forms of media seem to provide the greatest likelihood of positive learner attitude formation; there is insufficient evidence to determine if there is an age-media-attitude interaction; and achievement seems to be related to attitude. An annotated listing of the articles is provided, and several tables and figures are attached, as well as a list of additional references. (CMV)

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MEDIA INFLUENCE ON AFFECTIVE LEARNING:

A Review of the Literature

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MEDIA INFLUENCE ON AFFECTIVE LEARNING: A REVIEW OF THE LITERATURE

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Michael R. Simonson*
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Simulated or contrived experiences predominate in classroom learning situations. When a student listens to a lecture or discussion, views a film, or reads a book, the cognitions presented are representations or re-creations of real-life. On the other hand, the emotions and feelings elicited in the learner from these simulated learning experiences are real and are not artificial. The liking a learner feels for a character created in a book or seen on film is a real, experienced emotion, even though the student readily admits that he realizes this character is a fictitious one. While much of cognitive learning involves the use of simulated experiences, such as those seen on film or TV, the affective learning produced by these contrived classroom teaching activities is real and is no different from the affective learning produced in the student as a result of actual experiences.

Unfortunately, this idea is not often considered when the rationale for use of media in teaching is discussed.

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Delivery of instructional information is the most widely accepted reason for the use of educational media by teachers. Information gathering, storage, and playback are characteristics of media that tend to make mediated instruction more versatile, if not more effective. Almost since media became widely enough available for it to have a meaningful impact on classroom instruction there have been educators who have made promotional statements for the increased classroom use of media in order to "increase learning," "improve teaching," and "modernize the classroom." Unfortunately, there has been little definitive evidence to support these claims.

A more promising attack on the problem of validating the worth of teaching with instructional media has been initiated by educational researchers. Aptitude-treatment-interaction (ATI) studies have attempted to substantiate the basic assumption that all educational outcomes are a function of interactions between characteristics of students and the matching characteristics of instructional techniques (Allen, 1975).

One learner variable with a possible impact on achievement is attitude--specifically, attitude toward the content information to be learned. Attitude is defined as:

> "A mental and neutral state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objectives and situations with which it is related" (Thomas and Znaniecki, 1918).

Zimbardo and Ebbesen (1970) divide attitudes into three components: affect, cognition, and behavior. The affective component consists of a person's evaluation of, liking of, or emotional response to some object or person. The cognitive

component is conceptualized as a person's beliefs about, or factual knowledge of, the object or person. The behavioral component involves the person's overt behavior directed toward the object or person.

Researchers studying instructional media should be concerned with the attitudes (affective component) developed in learners as a result of the use of media in instruction because:

1) A positive link between learner attitude toward content information and achievement has been identified by numerous researchers (Simonson and Bullard, 1975; Simonson, 1975; Levy, 1973; Fenneman, 1973; Perry and Kopperman, 1973; and Greenwald, 1966; 1965).
2) A preference (affect) for mediated instruction by learners has been stated by several media researchers (Moldstad, 1974; Dambrot, 1972; Redemsky, 1959).

Relationships Between Media and Attitude: Theories

#1 Dale's "Cone" - Several theorists have attempted to describe the relationships between mediated instruction and learner attitudes. One of the most interesting was proposed by Wager (1975) who used a familiar friend of the media researcher, Edgar Dale's (1969) "Cone of Experience," as a framework for a discussion of the relationship between learner attitudes and instructional media. Basically, Dale's model may be envisioned as an upside-down ice cream cone, broad at the base and pointed at the top (Figure 1). This "cone" is

designed to visualize the degree of abstraction of the message presented to the learner. At the bottom of the "cone" Dale has "direct purposeful experiences." These experiences are supposedly the least abstract types of instruction possible. At the top of the "cone" the messages are highly abstract and consist of "verbal symbols." Between the lowest and highest levels of the "cone" are a number of intermediate levels, each one more abstract than the level below it. These intermediate levels are represented by media types, and often it is the characteristics of these media that determine the abstractness of the message.

Dale's "cone" is generally applied to the delivery of information in the cognitive domain. Wager (1975) proposes a set of guidelines for the use of Dale's "cone" for the facilitation of attitude attainment or attitude change by media. Also, Wager uses the "cone" to propose a series of attitude related predictions (Figure 2). Wager's predictions are that:

1) The layers of the "cone" are related to age, and/or sophistication of the learner, and the tasks of establishing or changing attitudes.
2) To establish attitudes in adults or change the attitudes of children almost any medium might be effective, but those at the top of the "cone" will probably be most efficient.
3) To change attitudes of adults or establish attitudes in children, enriched messages, represented by the lower levels of the "cone" will probably be most

effective.

4) The level of experience necessary to effect attitude change may not be the same as the level necessary to effect cognitive (achievement) change, although attitude change involves a cognitive component.

Message credibility seems to influence the degree of attitude change produced. Hovland's (1953) review of the literature indicated that "high credibility increases the amount of opinion change...and that a communicator of low credibility may bring about a decrease in opinion change (p. 40)." Wager (1975) generalizes that verbal messages are more effective in changing the attitudes of children than adults because the verbal message is looked on as having greater credibility to children. Adults would perceive verbal messages as being less credible, and would require more concrete, direct experiences in order to produce changes in attitude. Wager's article can be summarized by the concept that as the degree of message abstractness decreases, the more effective a medium will be in changing attitudes. The more concrete the medium, the more likely it will be that attitudes are influenced.

#2 Perception and Media Cues - Perception theorists (Forgus, 1966) provide additional ideas related to the question of the impact of media on learner attitudes. Perception is an information extraction process. Information is gained from various cues in a given situation -the more cues the more information gained. If the same verbal message is delivered by two forms of media, the one with the most cues would

provide the greatest amount of information. For example, a video presentation has fewer cues than a live presentation. Cues would include fineness of detail of facial features, color, dimensionality, voice quality, etc.

Croft (1969) defines communicator credibility as a cue. Hovland and Weiss (1952) demonstrated that the credibility of the information presented is a significant variable in determining attitude change. Since cues contribute to credibility, the more cues available, the more credible the communicator (medium), and the more attitude change in the listener.

#3 Visual Stimuli Theory - Cochran (1976) proposes a theory that presents a continuum of visual stimuli (Figure 3). This continuum draws heavily on Dale's "cone," discussed above, and on Bruner's (1966) "enactive, iconic, symbolic" continuum. While Cochran does not specifically mention the impact various forms of media have on learner attitude, the proposed continuum does attempt to provide a framework for defining relationships between media on the basis of the visual stimuli provided. While similar to Dale's "cone" in its sequencing of media from abstract to realistic, the Cochran model is more prescriptive in isolating the characteristics of media that influence visual stimuli. These visual stimuli might possibly interact with the affective component of learner attitude. Thus, the Cochran model may provide a paradigm for understanding the influence of media on affect.

STATEMENT OF THE PROBLEM As stated above, theorists have attempted to provide a paradigm explaining the relationship between attitude change and information delivery format. However, no definitive theory has been proposed and substantiated. Also, there has been little research that has attempted to establish the relationship between attitudes produced by media and subsequent learner achievement. Possibly, the impact of mediated instruction on the learning situation is not only one of efficiency of delivery, but also one of impact on learner attitude toward delivered cognitive content. If so, this content-related attitude may then be found to have a critical influence on learner achievement.

Specifically, this paper will review research studies that pertain to the media-attitude question. The reviewed studies will be examined in order to extract information from them related to these questions. Do different forms of media have differing influence on learner attitude, and is there an attitude-achievement relationship? Do these relationships fit an identifiable pattern? And, is future research in the media-attitude interaction area necessary?

PROCEDURES Four media were categorized on a continuum from more abstract to less abstract (Cochran, 1976; Dale, 1969). Next, the first twenty-three volumes of AV Communication Review (AVCR) were individually examined and each published article was categorized as experimental or descriptive using criteria found in Campbell and Stanley (1963).

Individual studies were read and those discussing or examining learner attitudes were identified and abstracted. After all articles were reviewed, each was evaluated, and information relevant to the purposes of this study was extracted and categorized. Experimental studies examining learner attitudes are summarized in Table 1. All published papers that discussed or studied learner attitudes and media were abstracted.

RESULTS Of the 567 articles published in the first twenty-three volumes of AVCR, 238, or 42% were categorized as experimental. Sixty-eight of the published studies either discussed learner attitudes in a theoretical framework or experimentally tested attitudes. Thirty-seven of those sixty-eight articles experimentally tested learner attitudes either toward a type of media or toward the content carried by the medium. These studies are summarized in Table 1. Table 2 summarizes the twenty studies that attempted to experimentally produce attitude changes. Several general results were obvious from this review of the research:

1) Researchers do not routinely evaluate the impact of mediated instruction on learner affect toward either the medium or the content information.
2) In most studies where attitudes were measured it was generally a post-hoc evaluation of peripheral importance to the main objectives of the study.
3) Locally constructed measures of attitude were most often used. Few published studies provided

validity or reliability information for attitude measures.

4) Attitude change as a result of the use of media has not been a major area of research effort by media researchers. It can be concluded that attitude research has not been on par with other types of research in either design of studies, or in the perceived importance of the topic as an experimental endeavor. This conclusion, while not unexpected, is certainly unfortunate.

CONCLUSIONS The information summarized in Tables 1 and 2, while not conclusive, tends to support the assumption that instructional media can have an impact on a learner's liking of content information, and that this impact seems to become more predictable as the type of media used to deliver the content becomes less abstract. This tends to support the prediction made by Wager (1975). Unfortunately, only twenty experiments reported an attempt at attitude change. Eleven were successful in producing desired changes in the attitudes of their subjects. The less abstract forms of media involved in attitude change procedures tended to be more successful in producing attitude changes. These findings, however, must be interpreted with caution, and several limitations taken into account. These limitations are:

- a disappointingly small number of experiments evaluated the interaction between learner attitudes and media,

- experimental procedures were often less than optimum,
- studies using the more abstract forms of media more often evaluated learner liking of the medium (eg. programmed instruction), rather than the content delivered, and
- no reviewed studies reported a significant attitude-achievement interaction.

Within the framework of these limitations it seems possible to draw several conclusions from this review of the literature:

1) Less abstract forms of media seem to provide the instructional developer with the greatest likelihood of positive learner attitude formation, all other things being equal. The affective component (liking) of attitude seems most often to be favorable for more concrete media.
2) More abstract forms of media seem to be less likely to produce favorable learner attitudes, and have been reported to produce negative attitudinal reactions in learners. Thus, the instructional developer should stress other related variables, such as content organization, flexibility of use, etc. during the design process in order to minimize the potential for affect loss.
3) There is insufficient evidence to conclude if there is an age-medium-attitude interaction.
4) Achievement seems to be related to attitude (Simonson and Bullard, 1975; Simonson, 1975; Levy,

1973; Fenneman, 1973; Perry and Kopperman, 1973; and Greenwald, 1966; 1965), but the media research examined in this paper has ignored the relationship. Therefore, it is impossible to draw conclusions on the possibility of a media-attitude-achievement interaction.

Obviously, there is a need for considerable additional research dealing with the interaction of liking (affect) and learning as influenced by media. Recently, the quality of research conducted by instructional technologists has improved. Instead of broad, sweeping generalizations about the importance of mediated instruction, ATI researchers are comparing specific characteristics of instructional tools and of learners in order to identify and evaluate relationships. Learner attitude, specifically the affective component of attitude as influenced by instructional media, has largely been delegated to a position of secondary importance. However, it is possible that the concept of "liking" may have a much greater impact on "knowing" than instructional design models seem to indicate. Certainly, further experimental study is needed.

Liking or disliking felt by learners as a result of mediated instruction is a true emotion, no different than the liking that might have been produced if the student had actually participated in the activity depicted by the media. The reality of these affective consequences of mediated instruction may be the most critical result of, or rationale for, the use of media in teaching.

Abstracted References Discussing Learner Attitudes and Media

Allen, W. H. Research on new educational media: summary and problems. AV Communication Review, 1959, 7, 83-96.

Author discusses and reviews research on media. Concerning research on attitudes: There is evidence that motion pictures, TV, and radio will have an influence on attitudes if they stimulate or reinforce existing beliefs of the audience; there is no evidence of attitude change if the message is contrary to audience's belief; the cumulative effect of more than one medium may be needed to effect attitude change.

Aquino, C. C. Teacher attitudes toward audiovisual instructions as they are influenced by selected factors within teaching environments. AV Communication Review, 1970, 18, 187-195.

The attitudes of 40 students in an audiovisual course toward all types of media were measured by the New Media Attitude Scale. Author did not discuss attitude change as a result of the use of media, but did conclude that attitudes toward media are affected by the media's availability and accessibility to the user.

Auster, D. Content analysis in AV communication research. AV Communication Review, 1956, 4, 102-108.

Author calls for the use of content analysis on films to measure how well the films meet their objectives. Also measured should be how well films facilitate learning and create or alter attitudes.

Baker, E. L. and Popham, W. J. Value of pictorial embellishments in a tape-slide instructional program. AV Communication Review, 1965, 13, 397-404.

Preservice and inservice teachers were the subjects in a study which assessed the merit of pictorial embellishments in slides that were part of a programmed lesson. Those subjects who saw the embellished rather than the plain version were more favorably disposed toward the instructional procedure.

Balogh, J. K. Attitudinal and preferential factors of selected male high school students with respect to TV viewing. AV Communication Review, 1958, 6, 203-206.

One purpose of the study was to classify the attitudes of high school boys and their parents regarding aspects

of TV. Pearson product-moment correlations were computed with the results of questionnaires given to 103 boys. No direct statements were made by the author about student attitudes toward TV viewing except that the high school boys sampled (sophomores, juniors, and seniors) preferred to do their studying without the assistance of televiewing.

Banta, T. J. Attitudes toward a programmed text: "The analysis of behavior" compared with "A textbook of psychology." AV Communication Review, 1963, 11, 227-240.

Banta's research studied student attitudes toward two introductory psychology textbooks--a programmed text and a conventional text. Periodic measurements taken throughout the semester on the same group of students showed a highly significant attitude change between rating sessions 1 and 2, and a significant change between session 2 and 3. Both changes were toward neutral positions and concerned the programmed textbook. With the conventional text in use (between rating sessions 8 & 9), three of the six scales became significantly less neutral and more negative.

Belson, W. A. Selective perception in viewing a TV broadcast. AV Communication Review, 1958, 6, 23-32.

The purpose of this study was to find out if the aim of a British broadcast series--to encourage people to adopt more vigilant attitudes toward the subject dealt with in the broadcast--was achieved. The sampled population consisted of people on the street and at home who were asked if they had seen the film, and then tested on their general attitude toward the film. The results showed that the attitudes about work expressed in the film were only held by a minority of those sampled and the film did not reduce their number; the broadcast on moral standards made people change their attitude to be more permissive and easy-going.

Bobren, H. M. Student attitudes toward instructional TV: additional evidence. AV Communication Review, 1960, 8, 281-283.

A questionnaire identical to the one used in a 1958 study by the author which measured student attitude toward a course taught experimentally by TV, was also used in this study for the same course taught strictly by TV. A comparison of the 1958 non-TV group with the 1960 group resulted in differences in 9 of the 11 scales on the questionnaire. The author concluded that the differences confirmed the results of the 1958 study that students taught via TV have relatively negative attitudes toward the course as compared with the conventional group.

Bobren, H. M. and Siegel, S. L. Student attitudes toward closed-circuit instructional TV. AV Communication Review, 1960, 8, 124-128.

Questionnaires to measure the attitudes of students toward an engineering course and the way it was taught were administered to 10 sections of the course: 5 taught via TV-discussion; 5 taught via lecture-demonstration-discussion. Students taught by TV had relatively negative attitudes toward both the course and the instructors compared to traditional students.

Booth, G. D. and Miller, H. R. Effectiveness of monochrome and color presentations in facilitating affective learning. AV Communication Review, 1974, 22, 409-422.

The hypothesis tested was: The affective performance of students who view color presentations will be better than that of students who view black and white presentations. The results showed more internalization toward positive attitudes in monochrome presentations for primary grades, although color was a positive factor in promoting levels of valuing in upper elementary grades.

Bushnell, D. B. What is next in computer applications to instruction? AV Communication Review, 1963, 11, 63-70. (Monograph)

Author describes the potential development of an "attitude changing" machine of Dr. B. Raven from UCLA. The device works on the principle that student attitudes can be changed effectively by asking an appropriate series of leading questions designed to achieve the right balance between appropriate attitudes and unacceptable attitudes.

Champa, V. A. Television: its effectiveness in 9th grade science teaching. AV Communication Review, 1958, 6, 200-202.

Attitudes toward science were measured by Kuder Preference Record in the fall and spring in 3 treatment groups: C-conventional group; TV-same course as C, plus 30 minute/week of TV instruction; and MP-same course as C, plus 30 minute/week of TV or film. MP girls were the only subgroup gaining significantly more in science-related activities compared to C group girls; pupils favored the use of TV and film "almost unanimously."

Coldevin, G. O. Spaced, massed, and summary as review strategies for ITV production. AV Communication Review, 1975, 23, 289-303.

To identify possible relationships between production review strategies and attitude shifts toward the theme of the review treatment program, a 15 item pre- and post-attitude scale was given to 4 experimental and one control group. All 4 treatment mean attitude shifts were significantly greater than the control group shifts. The "spaced" treatment was significantly more powerful than the simple treatment (no review strategies were used) in generating shifts in mean attitudes.

Colle, R. D. and Albert, R. S. College teachers' attitudes toward closed-circuit TV instruction. AV Communication Review, 1958, 6, 116-213.

Questionnaires were sent to 162 faculty members in the New England area who did not use instructional TV to investigate their attitudes toward TV on 5 variables. More instructors had negative rather than positive attitudes toward the use of TV (50% disapproved, 45% undecided, 5% approved). Of those sampled, 60% were unfamiliar with the uses of instructional TV and 82% of those in the "disapprove" group were also unfamiliar with the uses. No relationship between subjects' attitudes toward closed-circuit TV and the subject they taught, their experience, course load, or attitude toward commercial TV was found.

Crist, R. L. Role of peer influence and aspects of group use of programmed materials. AV Communication Review, 1967, 15, 423-434.

For this study, one class of 8th grade students were asked to work through a programmed text by themselves, while the other class was divided into 2 subgroups which read through the programmed text as a group using a 35mm filmstrip projector that showed one frame at a time. Results indicated that the group using the projector were slightly more positive than the textbook subjects. Projector subjects felt they were kept interested and attentive, but they were not particularly satisfied with the projector condition as a means of learning.

Croft, R. G.; Stimpson, D. V.; Ross, W. L.; Bray, R. M. and Breglio, V. J. Comparison of attitude changes elicited by live and videotape classroom presentations. AV Communication Review, 1969, 17, 315-321.

An attempt was made to change an audience's attitudes negatively toward intercollegiate athletics. Classroom presentations of an anti-athletic script were made live and via TV by the same professor. A Thurston scale was then administered to the subjects. Live presentations produced more attitude change than TV, and TV produced

more attitude change than the control format. The authors stated that live communication is most effective in producing attitude change than TV, because TV has fewer informational cues, such as size and color.

Dambrot, F. General psychology over closed-circuit television. AV Communication Review, 1972, 20, 181-193.

The Purdue Instructional Television Attitude Scale (PITAS) was given to 2900 general psychology students to measure their attitude toward a course given over closed-circuit TV. The course was rated as slightly better than neutral, indicating students were generally satisfied with the course. Attitudes toward closed-circuit TV were slightly lower than attitudes toward the course.

Ellett, L. E. and Smith, E. P. Improving performance of classroom teachers through videotaping and self-evaluation. AV Communication Review, 1975, 23, 277-288.

Background information in the article mentioned that other research related to videotaping teachers in classrooms revealed that the technique can be effective in changing teacher attitudes and performance.

Erickson, C. W. H. Teaching general science through film production. AV Communication Review, 1956, 4, 268-278.

Two ninth grade general science teachers used 2 different methods to teach the same units: one used 8 motion pictures as part of the unit; one produced a sound film on the topic with the class. After the unit students filled out a questionnaire. Students enjoyed the film-making more, but did not always feel they learned more by that method.

Frey, S. H.; Shimabukuro, S.; and Woodruff, A. B. Attitude change in programmed instruction related to achievement and performance. AV Communication Review, 1967, 15, 199-205.

This study investigated the question of learner attitude change toward programmed instruction as a result of prolonged use, as well as the effects of attitude change on achievement and performance. The researchers found that performance remained constant, but that extended use of programmed instruction resulted in reduction in achievement and attitudes toward the programmed material.

Galey, M. and George, K. Development of the skills of classification using television. AV Communication Review, 1974, 22, 153-166.

Six videotaped science lessons were designed and shown

to first grade students in order to produce participation by the students. The study concluded that students can be motivated by television lessons to continue science experimenting of their own volition after the close of the programs.

Greenberg, B. S. "Operation abolition" vs "Operation correction." AV Communication Review, 1963, 11, (3), 40-46.

Two propaganda films identical in visual content, but opposite in narratives, were shown to 4 experimental groups to examine how persuasive each film was on the attitudes and beliefs of the viewers. Results of pre- and post-test attitude measure showed: 1) film "Operation Abolition" (in which the House on Un-American Activities Committee said communism was active) stabilized existing attitudes toward that organization; 2) film "Operation Correction" (in which the American Civil Liberties Union said HUAC was wrong) induced strong negative reactions toward HUAC. Unfavorable shifts in attitude toward HUAC from positive to neutral were shown. Order of viewing the films had no effects in terms of attitude.

Greenhill, L. P. Application of sound motion pictures to research in clinical psychology. AV Communication Review, 1957, 5, 528-539.

Reports the results of 3 studies done at Penn State with film in psychotherapy and clinical diagnosis. In the first study, done by Mertens, mental health films were used to produce changes in attitudes toward patients self-concept. The group shown films showed "significant" move on one of the personality scales used--the move was in the direction of less dominance. The second study, by Harriman, attempted to bring about measurable changes in "certain" attitudes of inmates at a penitentiary through group-centered psychotherapy and mental health films. No significant differences among treatment groups were found. The third study, by Haworth, assessed attitudes and feelings toward family relationships that might be revealed in children's responses to a filmed puppet show. Children were shown the film, which was stopped at a dramatic point, discussed, and then continued. Interview responses of the children were analyzed and showed that: 1) children with no siblings showed stronger negative feelings towards parents than toward baby; 2) children from the sibling group were more negative toward baby.

Greenhill, L. P.; Carpenter, C. R.; and Ray, W. S. Further studies of the use of TV. AV Communication Review, 1956, 4, 200-215.

Group #1 was given 5 weeks of face-to-face instruction, then 5 weeks of TV instruction; Group #2 was given the same methods of instruction in the reverse order. All students were then permitted to choose between either method, and interviewed as to the reason for their choice. About 1/3 of the students chose TV rather than live instruction, and the reasons for their preference were mostly physical. Most of the attitude questionnaire responses were neutral. When the "free choice" practice was extended to another course, verbal preferences were 51% TV, 49% live, but actual choices made were 71% TV, 29% live.

Greenhill, L. P. and McNiven, M. Relationship between learning and the perceived usefulness of a film. AV Communication Review, 1956, 4, 255-265.

In testing the hypothesis that the nearer a learner perceives himself to be to the use of the information contained in a film, the greater will be his learning, a Guttman-type attitude scale was constructed. The attitude scale was used to measure the perceived usefulness of the material to the learner, and correlated well with film rankings (.05). It also correlated highly (.01) with learning and low with intelligence.

Haskell, R. W. Effect of certain learner personality differences on instructional methods. AV Communication Review, 1971, 19, 287-297.

Author states that his results "suggest that the effectiveness of a certain method of instruction utilized will vary as a function of certain student personality characteristics."

Hayes, R. B. Immediate learning reinforcement. AV Communication Review, 1966, 14, 377-381.

Measured attitude of high school students taught with and without a film and driving simulator. The same study was run two years in a row and in both years no significant differences in attitude, as measured by Siebrecht Attitude Scale, were found.

Hess, R. D. and Tenezakis, M. D. Selected findings from "The computer as a socializing agent: some socio-affective outcomes of CAI." AV Communication Review, 1973, 21, 311-325.

One of the reported findings concerned 7th-9th grade

students needing remedial help in arithmetic. The students preferred computers to either the teacher, textbook, or TV News.

Jacobs, J. N. and Bollenbacher, J. K. Teaching 9th grade biology by television. AV Communication Review, 1960, 8, 176-191.

Four classes in four schools (1 categorized as high in general academic ability, 1 as low, 2 as average) were randomly selected for this study. One teacher taught all 4 classes--2 of which were taught by TV, 2 were taught by teacher. The test "Facts About Science" was used to measure student attitudes toward science and scientists. No significant difference was found between the 2 methods of instruction. "Sizing Up Your School Subjects" was used to measure student attitude toward biology. In general, students reacted with more favorable attitudes toward TV than in same experiment in 1957-58. The "below average" school showed significant shift toward positive attitudes with instruction by TV; "above average" school showed somewhat negative attitude toward TV. Liking and learning were found to be not correlated.

Janes, R. W. Pre-existing attitudes of college students to instructional television. AV Communication Review, 1964, 12, 325-335.

Attitude measures of students enrolled in a college social studies course were correlated with their preferences for TV or classroom lectures after they had TV lectures. All measures (indices of authoritarian id, self-confidence, and intelligence) showed a positive statistical correlation with preference for TV lectures. None of the pre-existing student attitudes examined provided predispositions which could limit most students from developing positive reactions to lecture by TV.

Joint Committee on Programmed Instruction and Teaching Machines. Supplement II to recommendations for reporting the effectiveness of programmed instruction materials. AV Communication Review, 1966, 14, 247-257.

Report makes specific recommendations as to what should be included in measures of interest and attitude on programmed materials.

Katzman, N. and Nyenhius, J. Color vs black-and-white effects on learning, opinion, and attention. AV Communication Review, 1972, 20, 16-28.

Two experiments were conducted (#1 with 26 males, #2 with 34 females) in which the subjects viewed color or black/white slides of posters and a comic book story, and then were given a semantic differential scale to

measure attitude differences toward the projected materials. In experiment #1, only 2 of the attitude variables showed statistically significant and more positive attitudes toward the color presentations. Eleven out of 12 other comparisons in both experiments showed higher scores for the color group, although the differences were not statistically significant.

Knowlton, J. and Hawes, E. Attitude: helpful predictor of audiovisual usage? AV Communication Review, 1962, 10, 147-157.

National Science Foundation Summer Institute participants (N=1400) were asked to select deterrents to the use of film from a list, and describe the deterrents in their terms. A Thurstone-type AV attitude scale was administered and analyzed. Attitude was positively correlated with information about the AV field. Teachers just beginning an AV course are more likely to be deterred from using audiovisuals because of the manner in which they perceive barriers to usage than because of their unfavorable attitude to the instructional value of the audiovisuals. Authors feel that an "information campaign" to make barriers less insurmountable would increase AV usage.

Kraus, S. Modifying prejudice: attitude change as a function of the race of the communicator. AV Communication Review, 1962, 10, 14-22.

Four versions of a TV presentation were prepared to study the effectiveness of Negro and white actors in changing attitudes of 11th grade whites toward Negroes. Version #1 used 2 white actors discussing prejudice; #2 used 2 black actors; #3 used black actor as main character and white actor; #4 used white actor as main character and black actor. T-tests and ANOVA were used to analyze the results of a pre- and post-treatment "Attitude Scale". Film versions 3 and 4 significantly changed attitudes toward blacks. Author concluded that 11th grade white students are more convinced about the sincerity of the communicator when he practices what he preaches, and that they can identify with the white person talking to the black person and then modify their attitudes.

Larimer, C. S. and Sinclair, W. W. Some effects of two-way television on social interaction. AV Communication Review, 1969, 17, 52-62.

Two groups of students taking a graduate seminar were linked to each other through a two-way TV set-up. The professor was always present at the same location. Students using two-way television had a negative attitude toward the course and TV as a medium of instruction as

compared to live class with the professor present.

MacLean, Jr., M.S. and Toch, H. H. The group interview as an audience reaction measure. AV Communication Review, 1959, 7, 209-219.

After a film was shown to several groups, an interviewer asked questions about the film to a small group of the participants. The author suggests film producers should consider several areas when using a group interview to measure audience reaction to a film. One question that should be answered is: When a film is intended to modify attitudes, are the feelings expressed by the interviewees about the film the same as the producer intended?

Marshall, C. and Maguire, T. The computer as social pressure to produce conformity in a simple perceptual task. AV Communication Review, 1971, 19, 19-28.

By subjecting 8th and 9th grade students to various combinations of computer or social pressure in identifying a correct answer, it was found that perceptual judgment can be swayed by false information presented in a CAI situation.

Meierhenry, W. C. Needed research in the introduction and use of audiovisual materials: a special report. AV Communication Review, 1962, 10, 307-316.

Article lists specific questions as possible research topics in media.

Merrill, I. R. Attitude films and attitude change. AV Communication Review, 1962, 10, 3-13.

"Attitude films" were made to shift or reinforce attitudes through a dramatic plot and characters with which the audience could identify. Subjects (both flexible and rigid thinkers) responded to measures of salience, cognitive change, and affect before and after viewing the films. An ANOVA on the Scale of Social Values data showed neither the experimental (attitude film) nor control (information film) groups, experienced a shift in affect after viewing the films. For viewers of the attitude film, there was no difference in attitude between rigid and flexible thinkers. Change in attitude is prevented by defensive avoidance.

Merrill, I. R. Liking and learning from educational television. AV Communication Review, 1956, 4, 233-245.

This study attempted to duplicate a study by Twyford (1951) which found that a "like-dislike" scale correlated

negatively with an "I am learning" scale. Merrill's research used 45 minute telecasts directed toward farmers and homemakers to compare heterogeneous groups using a "liking" scale and to compare homogeneous groups using a "liking" and "learning" scale. No correlation was found to exist between learning and liking scales. Merrill also concluded that given heterogeneity between groups, where both groups have high rating on learning scale and one group has high, the other one low on liking scale, the difference between groups on the liking scale is one measure of a difference in attitude.

Merrill, I. R. and McAshan, H. H. Predicting learning, attitude shift, and skill improvement from a traffic safety film. AV Communication Review, 1960, 8, 263-274.

Film production and traffic safety experts used behavioral and factual analyses to predict attitude shifts produced by a traffic safety film. Differences in scores on a semantic differential scale between control (pre- and post-test) and experimental (pre-test film, post-test) groups were assumed to represent shifts in attitude. Although both groups of experts agreed on which message elements of film were expected to produce attitude shifts immediately after and 6 weeks after viewing the film, no shift in attitudes toward the central concept of the film was revealed at either time. Attitudes toward 2 specific concepts in the film shifted in desired direction on test administered 6 weeks after viewing film.

Miller, G. and Roberts, K. Communication race, open- and closed-mindedness, and response to informative communications. AV Communication Review, 1965, 13, 259-269.

Audience attitude toward content of message delivered by a white female communicator vs their attitude toward content of the same message delivered by a black female communicator in a slide show was measured. Analysis of the results of a semantic differential scale showed that the characteristic "closed-mindedness" exercised greater effect on attitudes toward the message than did race of the communicator. Also, the most negative attitudes were expressed by closed-minded individuals exposed to the black communicator.

Miller, H. R. Sequencing and prior information in linear programmed instruction. AV Communication Review, 1969, 17, 63-76.

A 2x4 factorial design (2 levels of prior information x 4 levels of sequencing) was used to analyze mood change in subjects using programmed material. No difference in the mood of the subjects, as measured by a Mood

Adjective Check-List, was found in any experimental group.

Miller, N. E. Graphic communication and the crises in education. AV Communication Review, 1957, 5, 65-70.

This chapter in a whole issue on the topic of graphic communication discusses the need for better scientific understanding of how to affect motivation and attitudes. Author suggests several hypotheses for investigation: 1) Motivation and attitudes can be conditioned and deconditioned; 2) Some motivations and attitudes are harder to change than others; 3) Identification with hero facilitates adopting his motives and attitudes. The lack of suitable attitude measures is another area of concern.

Miller, W. C. Film movement and affective response and the effect on learning and attitude formation. AV Communication Review, 1969, 17, 172-181.

Hypothesis tested was that film motion would create emotional involvement, as measured by GSR, and produce positive attitude change, but this would not influence recall of information. The "filmograph" group scored significantly lower on six of the eight attitude factors ($p < .01$). Although the motion version was preferred on a number of attitude variables, there was no correlational evidence of a relationship between emotional arousal and attitude. There were no group differences on information recall.

Moldstad, J. A. Selective review of research studies showing media effectiveness: a primer for media directors. AV Communication Review, 1974, 22, 387-407.

Author states that when instructional technology is carefully selected and used "multimedia and/or audio-tutorial instructional programs are usually preferred by students when compared with traditional instruction."

Niedermeyer, F. C. The relevance of frame sequence in programmed instruction: an addition to the dialogue. AV Communication Review, 1968, 16, 301-317.

Four groups used programmed materials: a control group, and 3 groups whose materials were designed with the frames in either logical, scrambled, or reversed order. An attitude measure, administered by the classroom teacher the day following the study, showed that subjects in the logical sequence group rated the program as "interesting", while those in the scrambled and reverse groups rated it as "neutral".

Neidt, C. O. Use of videotaped instructional television for teaching study skills in a university setting. AV Communication Review, 1967, 15, 269-284.

Subjects who viewed videotaped lessons designed to improve study skills liked the lessons via TV and tended to improve their study skills after the TV lesson.

Neidt, C. O. and Sjogren, D. D. Changes in student attitudes during a course in relation to instructional media. AV Communication Review, 1968, 16, 268-279.

An attitude scale was administered 5 times to college students during 4 courses taught by different types of media. One course was taught by programmed instruction, one by educational television, one by small class, and one by large class. There was a consistent decline in attitude scale scores from the 1st to the 5th administration. The rate of decline was more rapid in the programmed instruction and TV than in the other classes. The mean attitude scores were consistently ordered as programmed instruction > TV > small class > large class.

O'Toole, Jr., J. F. Teachers' and principals' attitudes toward programmed instruction in the elementary school. AV Communication Review, 1965, 12, 431-439.

This study involved 12 teachers who brought their classes to a special room where half the students used teaching machines for spelling lessons, and the other half were taught conventionally. Through the use of attitude questionnaires and structured interviews with the teachers and 6 principals, O'Toole concluded that although all the teachers had a negative attitude toward the teaching machines and their mechanical breakdown, staff attitudes toward the potential of programmed instruction for the elementary school was favorable.

Popham, James W. Pictorial embellishments in a tape-slide presentation. AV Communication Review, 1969, 17, 28-35.

Three versions of 3 programs were designed--a written version, an unembellished slide/tape, and embellished slide/tape presentation--and were shown to graduate education students. Subjects showed no clear preference for any of the treatments, hence use of embellishments does not improve or hinder learning or affect.

Rayder, N. F. and Neidt, C. O. Attitude change as a function of the number of scales administered. AV Communication Review, 1964, 12, 402-411.

This study investigated the relationship of the number

of attitude scales administered during a learning experience to the change in measured attitudes toward content, method of instruction, and expectation fulfillment. A 26-item attitude scale was administered 6 times to 700 students. Although the attitudes of students toward method, expectation, and course content may decline throughout the learning experience, the decline is not necessarily a function of repeated measures during the learning experience.

Redemsky, L. W. Student evaluation of films used in college social studies. AV Communication Review, 1959, 7, 3-13.

In order to determine what attitudes students had about films if a specific procedure was used in presenting the film, this study presented the content of social studies films and explained their relation to the course before showing the films. Questionnaires completed the next day revealed a "very favorable" attitude existed toward the films used and the techniques used in presenting them. 98.4% of the viewers felt a discussion about the films the day after seeing them aided learning. "No marked difference" was found between attitudes of the poorest and the best (based on grade estimation) students.

Robinson, E. J. and Lerbinger, O. Subjective reactions of students to a programmed workbook for a continental classroom course. AV Communication Review, 1963, 11, 241-252.

A questionnaire was designed and administered to high school and college students, some of whom used a programmed workbook as a supplement to ETV. The respondants who used the workbook generally felt it was "very helpful" or "somewhat helpful." Respondants who reported negative attitudes toward the workbook admitted they did not have time to use the workbook properly or did not use it at all.

Rose, N. and Van Horn, C. Theory and application of preproduction testing. AV Communication Review, 1956, 4, 21-30.

Author discusses the need for testing how effective a film will be before it is produced. To measure the response of the audience to a film, an estimate or measurement of the degree of attitude change is necessary, which should then be compared with the producer's intent. Time is an important variable in attitude change since the nature of the content and the personality of the viewers may affect attitude change only if the individuals are given several weeks or days to assimilate what they have seen.

Sadnavitch, J. M. and Popham, W. J. Measuring attitudes toward filmed courses. AV Communication Review, 1960, 8, 286-288.

Purpose of the study was to develop an "Attitude Toward Filmed Courses Scale," and apply it to secondary school physics and chemistry courses taught primarily by film. The article presented computations of chi-square values, but made no judgment except that the 30-item scale was "potentially valuable."

Smith, E. P. The effects of a filmstrip/tape program on teachers' attitudes toward behaviorally stated objectives. AV Communication Review, 1972, 20, 443-457.

This study tested the hypothesis--will a filmstrip/tape change teacher attitudes toward behavioral objectives, and are the changes related to the teachers' personality types or subject matter taught? The filmstrip/tape used was designed to change attitudes toward behavioral objectives. Results showed there was not any real attitude change for different subject matter teachers, and that different personality types were influenced differently.

Smith, K. U. Audiovisumatic teaching: a new dimension in education and research. AV Communication Review, 1960, 8, 85-103.

A series of lectures, lecture demonstrations, and laboratory studies of lecture review and automated tutoring was used with several different classes. Attitude surveys were given to participants to identify positive and negative features of the audiovisumatic teaching machine used, and students' attitudes toward the machine compared to other teaching machines. A positive aspect of the machine was reported to be the ability to relate vision and hearing. Negative attitudes toward the machine were reflected in comments about the rigidity of the machine, the impersonal nature of the machine, and the lack of review. Students had a strong motivation to use the audiovisumatic, and preferred it to "some other methods."

Stevens, W. D. Affection and cognition in transaction and the mapping of cultural space. AV Communication Review, 1970, 18, 440-445.

The author states that without information about the affective and cognitive components of human-environmental behavior, one cannot adequately consider "learner characteristics, media attributes, product evaluation, or environmental analysis, all of which existentially involve the two."

Tannebaum, P. H. Music background in the judgment of stage and TV drama. AV Communication Review, 1956, 4, 92-101.

Three versions of a drama presentation (stage, TV, and TV/theater) were done with and without music in the background. Audience was given a semantic differential attitude measure. The attitude index showed the format of the presentation was highly significant but not statistically significant. The effect of music in the background on attitudes toward the play was negligible.

Tobias, S. Effects of attitudes to programmed instruction and other media on achievement from programmed materials. AV Communication Review, 1969, 17, 299-306.

Teachers' attitudes toward a form of media influences how much students learn from that media, in this case, programmed instruction. Negative attitudes of students using the material or teachers assigning use of the materials toward programmed instruction effects learning by programmed instruction.

Tobias, S. Lack of knowledge and fear of automation as factors in teachers' attitudes toward programmed instruction and other media. AV Communication Review, 1966, 14, 99-109.

This article reported the results of two studies dealing with teachers knowledge about and attitudes toward programmed instruction. In the first study, 115 teachers in MS programs rated various instructional media on 6 semantic differential scales, and took a test measuring their knowledge of programmed instruction. Results included the fact that the low knowledge group saw traditional media as more efficient, while the high knowledge group had more favorable attitudes towards programming terms. The second study explored the degree to which attitudes toward programmed instruction could be modified by direct exposure to the material. An attitude scale was administered to 23 students who then received lessons and a lecture on programmed materials. Post-attitude measures showed a difference between experimental and control groups, but not statistically significant.

Toc , H. H. Prejudgments of educational television: a study of stereotypes. AV Communication Review, 1960, 8, 50-61.

Questionnaires were given to 148 subjects before a TV evaluation session, in order to explore the preconceptions of people unfamiliar with educational TV. The viewers were given a choice between seeing an educational or entertainment program. Forty-nine percent of those who approved of educational TV, on the questionnaire, chose to

view the educational program; 37% who approved ETV chose the entertainment program. Although most viewers had a "gripe" about commercials, only 20/146 expressed disapproval of them. Author found no "apparent relationship" between feelings about commercials and attitudes toward ETV.

VanderMeer, A. W. Ten recent Title VII reports: a perspective. AV Communication Review, 1961, 9, A35-A44.

Article discussed two research reports: 1) R.E. Johnson (1961) utilized tape recordings and posters in a psychology course vs a lecture/discussion format. Student attitudes were "highly unfavorable" toward the educational media used, 2) L. C. Hunt (1961) gave attitude tests to teachers of reading and parents who had seen 15 TV demonstration lessons on teaching reading. Both groups of viewers favored TV at a "statistically significant level" with respect to their attitude and opinion toward it.

Westley, B. H. and Jacobson, H. K. Dimensions of teachers' attitudes toward instructional television. AV Communication Review, 1962, 10, 179-185 (a).

A 55-item test was devised to measure aspects of teachers' attitudes toward the medium of instructional television. Intercorrelation and factor analysis of the items showed that "on the whole" teachers' attitudes toward instructional TV were highly favorable, and consistently rejected the idea that a TV teacher represents a threat to the classroom teacher.

Westley, B. H. and Jacobson, H. K. Instructional TV and student attitudes toward teacher, course, and medium. AV Communication Review, 1963, 11, 47-60.

One group of 9th grade students viewed a year long math course on TV, while a second group of students had an algebra course with no TV. A semantic differential scale was administered to both groups at the end of the spring semester to measure students' attitudes toward the teacher, course, and medium of instruction. In all three areas, TV course students had more favorable attitudes than non-TV students ($p < .02$). The TV group also rated their textbooks less favorably than did the non-TV group.

Westley, B. H. and Jacobson, H. K. Teacher participation and attitudes toward instructional television. AV Communication Review, 1962, 10, 328-333 (b).

Using a group of 50 teachers--33 "participating" teachers, who used a TV course in their classroom, and 17 "non-participating" teachers-- this research study dealt with

the differences in attitudes between the two groups of teachers toward instructional TV. On a 55-item attitude scale, 14 items showed a significant ($p < .05$) difference between the groups. All 14 were in the direction of greater approval by participation group. Participating teachers had a significantly higher total favorability score, and were more favorable towards instructional TV than non-participants on 42/46 items. No relationship was found between attitude scores and teacher's educational attainment or length of service.

Westley, B. H. and Severin, W. J. Viewer location and student achievement. AV Communication Review, 1965, 13, 270-274.

Data was gathered on participants in a 9th grade TV course on several variables including achievement, intelligence, family social status, and "various attitudes." Students were given a semantic differential, but the effects of viewer distance from TV on student attitudes was not reported.

TABLE 1. SUMMARY OF EXPERIMENTAL STUDIES

	Subject	Grade	Exp. N	Cont. N	Random Asmt.	Attitude Measured M=Twd.Medium C=Twd.Content	Attitude Change Measured	Sig. of Change p< or diff.
PROGRAMMED INSTRUCTION								
Banta (1963)	Psychology	College	290	-	No	M	Yes	.01 .05
Crist (1967)	U.S. Constitution	8	32	26	No	M	No	-
Frey (1967)	General Science	8	74	-	No	M	Yes	.01
Marshall (1971)	Perception	8-9	84	14	Yes	C	Yes	.05
Miller (1969)	Arithmetic	8&12	240	-	Yes	M	Yes	NS
Niedermeyer (1968)	Algebra	9	48	16	?	M	No	.05(diff.)
O'Toole (1965)	Prog. Instruction	Teachers	18	-	No	M	No	-
Robinson (1963)	Probability/ Statistics	H.S. & College	158	-	No	M	No	-
Tobias (1966)								
Study I	Instr. Media	Teachers	115	-	No	M	Yes	NS
Study II	Prog. Instruction	College	15	-				
STILL PICTURES								
Baker (1965)	Objectives	College	50	53	Yes	M	No	-
Katzman (1972)								
Study I	Comic Book Story	College	13(m)	13(m)	Yes	M	Yes	NS
Study II	Comic Book Story	College	17(f)	17(f)	Yes	M	Yes	NS
Miller (1965)	Weather Control	College	72	-	Yes	C	No	.05(diff.)
Popham (1969)	Education	Graduate Students	100	-	Yes	C	No	-
Smith	Objectives	Teachers	75	-	?	C	Yes	NS

	Subject	Grade	Exp. N	Cont. N	Random Asmt.	Attitude Measured M=Twd.Medium C=Twd.Content	Attitude Change Measured	Sig. of Change p< or diff.
FILM (Edited Motion)								
Greenberg (1963)	Communism	College	144	-	No	C	Yes	.05
Greenhill (1956)	Instr. Films	12	473	-	Yes	C	No	-
Greenhill (1957)								
a) Mertens (1951)	Mental Health	College	124(f)	130(f)	Yes	C	Yes	Yes (no p given)
b) Harriman (1955)	Psychotherapy	Adult	61	20	No	C	No	?
c) Haworth (1956)	Family Relationships	4, 6, 8, 10 yr.	250	-	Yes	?	No	-
Hayes (1966)	Driver Education	9-12	~ 200	~200	?	C	Yes	NS
Merrill (1960)	Traffic Safety	9-12	165		No	C	Yes	.05
Merrill (1962)	Traffic Safety	Adult	181(m)	-	Yes	C	Yes	NS
Miller (1969)	Literature	Adult	80	-	?	C	Yes	.01
TV-VIDEO (Live Motion)								
Bobren (1960)	Engineering	College	52(m)	60	?	C,M	No	-
Booth (1974)	Affective	2, 4, 6	32(2nd) 44(4th) 56(6th)	-	Yes	C,M	No	-
Champa (1958)	Science	9	300	-	No	C,M	Yes	.01
Coldevin (1975)	Forest Fires	7	388	97	Yes	C	Yes	{.001 {.05
Croft (1969)	Intercollegiate Athletics	College	~170	~50	No	C	Yes	.02
Galey (1974)	Science	1	~ 98	~25	Yes	C	No	-
Jacobs (1960)	Biology	9	219	219	Yes	C,M	No	-
Jones (1964)	Social Studies	College	200	200	?	M	No	-
Kraus (1962)	Prejudice	11	525	?	?	C	Yes	.05
Larimer (1969)	Education	Teachers	22	-	No	C,M	No	-

	Subject	Grade	Exp. N	Cont. N	Random Asmt.	Attitude Measured M=Twd.Medium C=Twd.Content	Attitude Change Measured	Sig. of Change p< or diff.
Merrill (1956)	Farm/Homemaking	Adult	60	-	?	C	No	-
Neidt (1968)	Various College Courses	College	359	-	No	M	Yes	?
Rayder (1964)	Ag. Economics or Psychology	College	700	-	No	C,M	Yes	.05 .01
Tannebaum (1956)	Drama	College	60	60	?	C	No	-
Westley (1962)	Inst. TV	Teachers	33	17	No	M	No	.05(diff.)
Westley (1963)	Algebra	9	234	269	No	C,M	No	.02(diff.)

TABLE 2. SUMMARY OF ATTITUDE CHANGE STUDIES REPORTED*

	Medium	# of Studies That Measured Learner Attitude (Toward Medium=M Toward Content=C)	# of Studies Measuring Attitude Change	# of Studies Where Desired Attitude Changes Were Found
More Abstract	PRINT (Programmed Instruction)	8(M) 1(C) 9	4(M) 1(C) 5	1 (20%)
	STILL PICTURES	1(M) 5(C) 6	2(M) 1(C) 3	ø
	FILM	9(C) 9	6(C) 6	4 (66.7%)
	TELEVISION	6(C) 3(M) 7(C&M) 16	2(C&M) 3(C) 1(M) 6	6 (100%)
Less Abstract	TOTALS	40	20	11

* Published in Volumes 1-23, AV Communication Review (several articles discussed more than one experiment)

Figure 1.

Edgar Dale's Cone of Experience

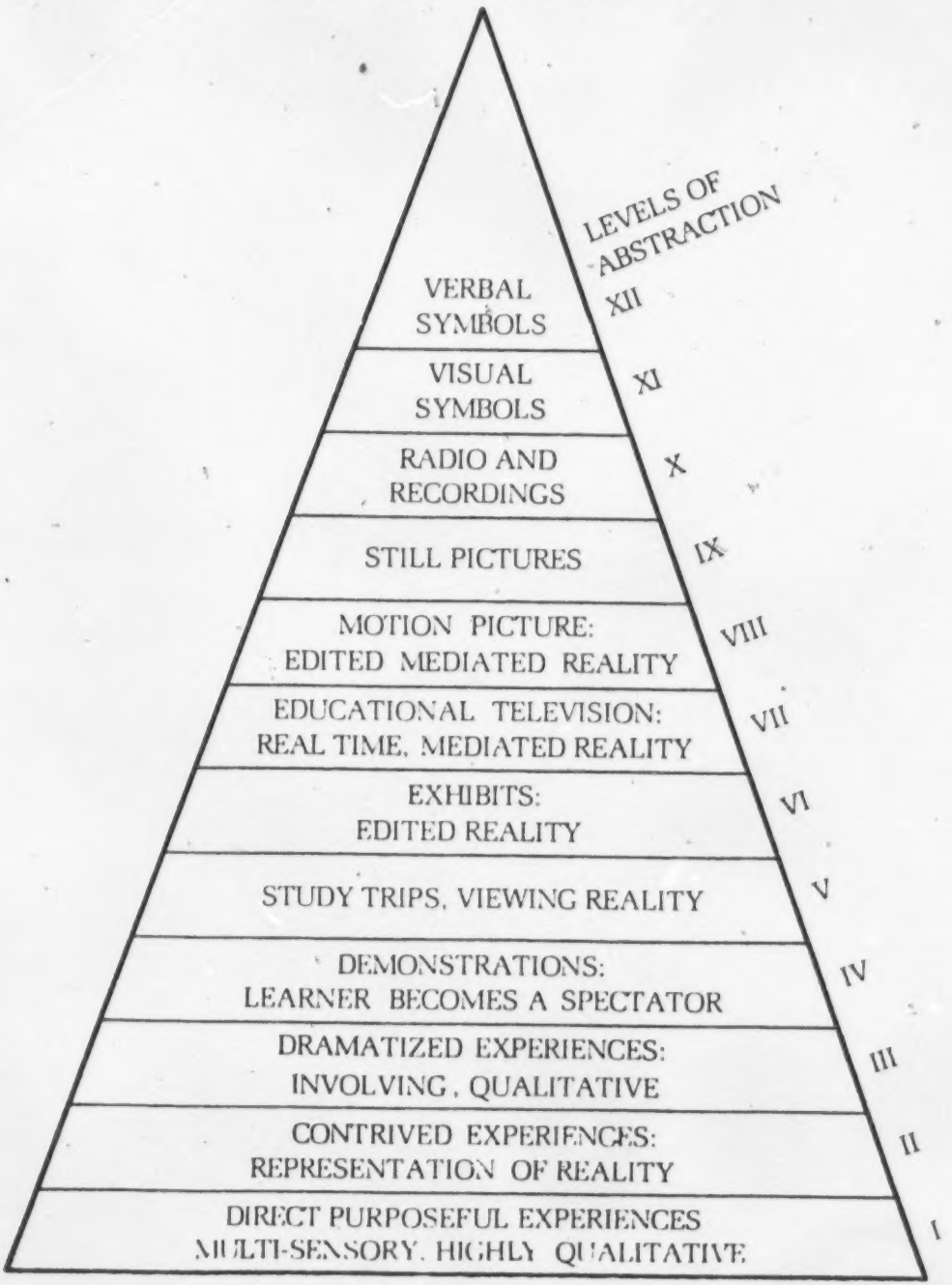
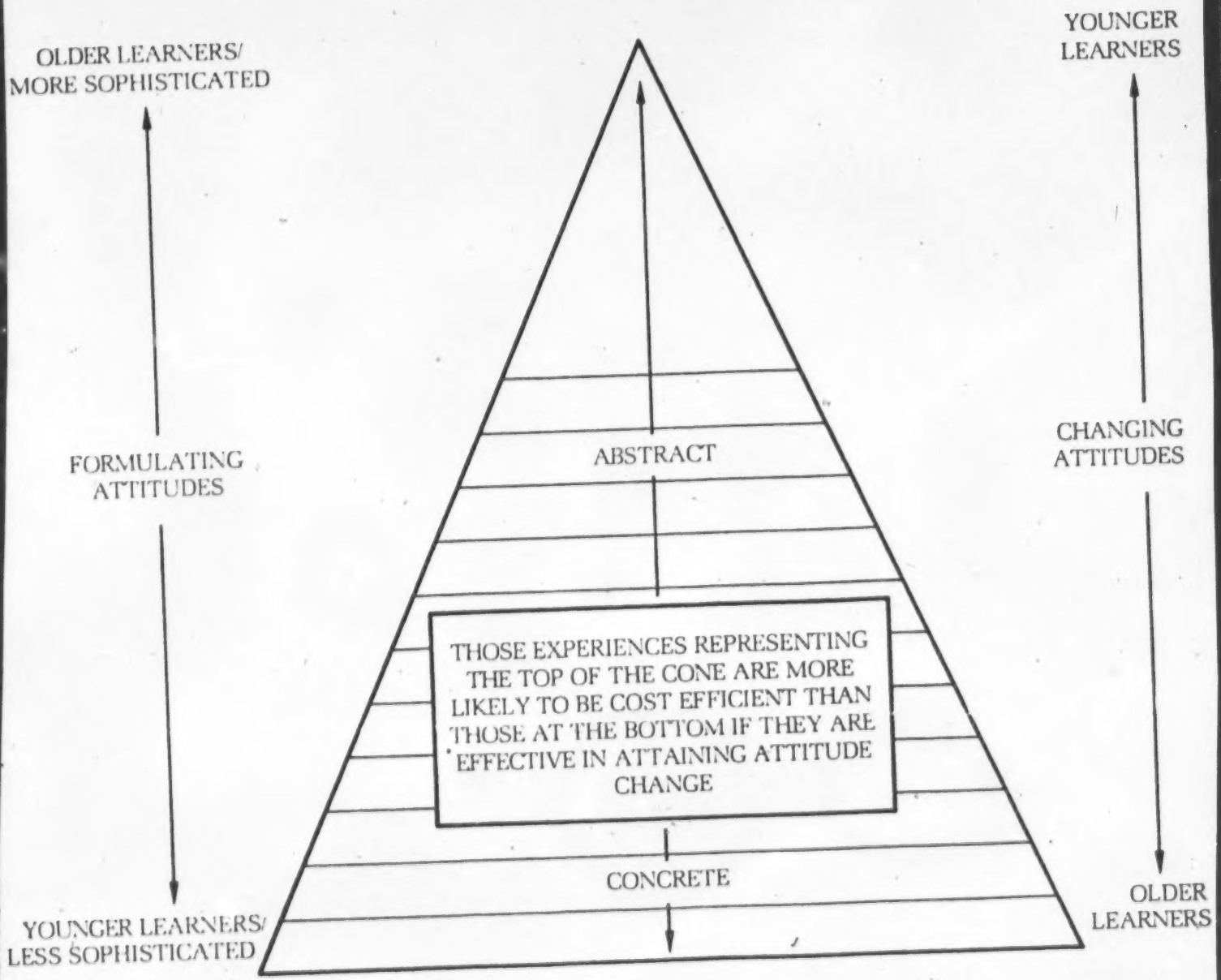


Figure 2.

Media Selection for the Affective Domain



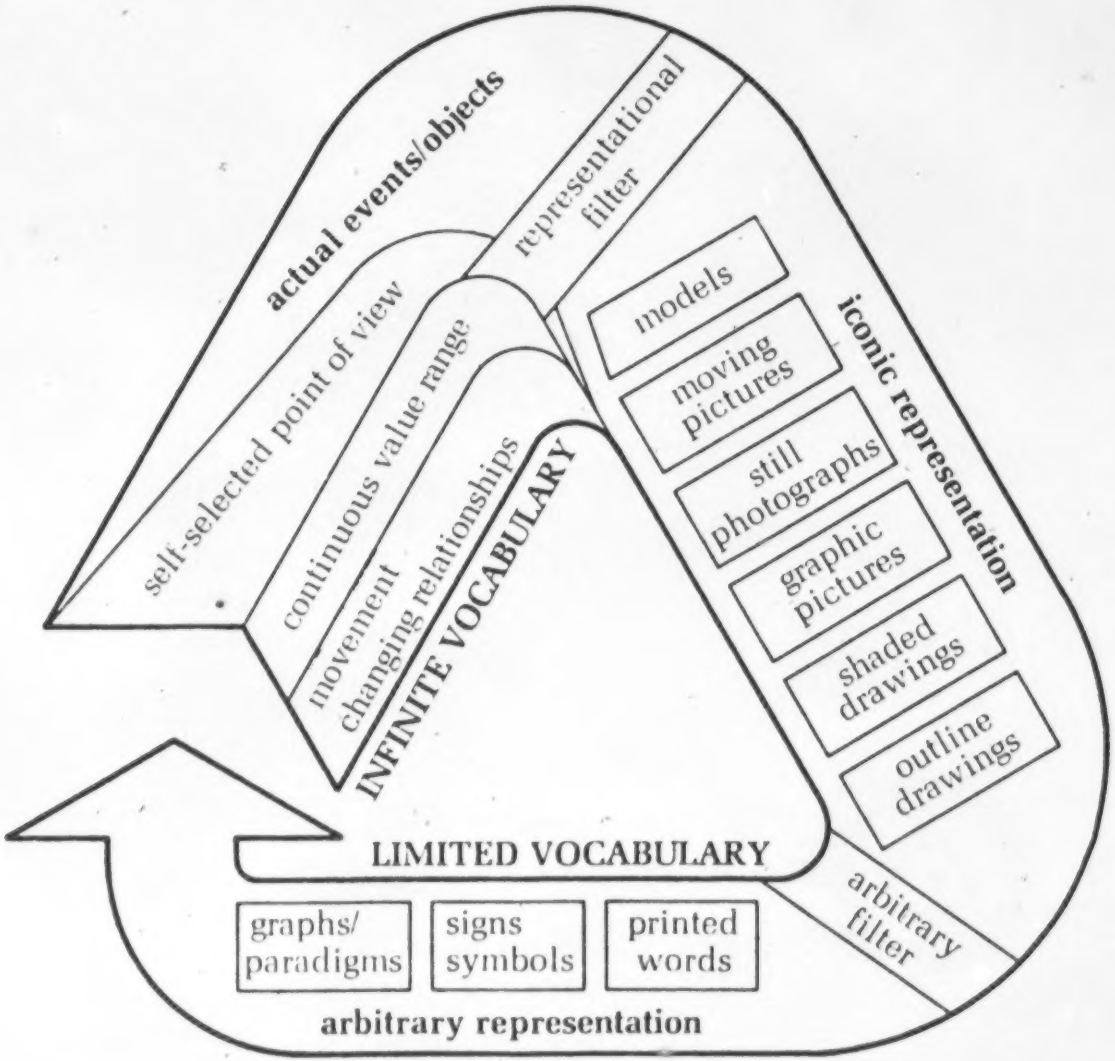


Figure 3. **Model of Cochran's Theory of Visual Stimuli**

Additional References

Allen, W. H. Intellectual abilities and instructional media design. AV Communication Review, 1975, 23, 139-170.

Bruner, J. Toward a Theory of Instruction. Cambridge, Massachusetts: Harvard University Press, 1966.

Campbell, D. T. and Stanley, J. C. Experimental and quasi-experimental designs for research on teaching. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand-McNally, 1963.

Cochran, L. M. Toward a theory of visual stimuli. Unpublished manuscript, Iowa City, Iowa: University of Iowa, 1976.

Dale, E. Audiovisual Methods in Teaching, 3rd ed. New York: Holt, Rinehart and Winston, 1969.

Fenneman, G. C. The validity of previous experience, aptitude, and attitude toward mathematics as predictors of achievement in freshman mathematics at Wartburg College. Unpublished doctoral dissertation, University of Northern Colorado, 1973.

Forgus, R. H. Perception. New York: McGraw-Hill, 1961.

Greenwald, A. G. Effects of prior commitment on behavior change after a persuasive communication. Public Opinion Quarterly, 1966, 29, 595-601.

Greenwald, A. G. Behavior change following a persuasive communication. Journal of Personality, 1965, 33, 370-391.

Hovland, C. I. et.al. Communication and Persuasion. New Haven: Yale University Press, 1953.

Hovland, C. I. and Weiss, W. The influence of source credibility on communication effectiveness. Public Opinion Quarterly, 1952, 15, 635-650.

Levy, J. Factors related to attitudes and student achievement under a high school foreign language contingency contract. Unpublished doctoral dissertation. University of Southern California, 1973.

Perry, G. A. and Kopperman, N. A better chance-evaluation of student attitudes and academic performance, 1964-1972. Boston: A Better Chance, Inc., 1973.

Simonson, M. R. Videotaped commitment: influence on subsequent student attitudes and achievement. Paper presented at the annual convention of the Association for Educational Communications and Technology, Anaheim, California, April, 1976.

Simonson, M. R. and Bullard, J. Influence of student expectations and student sex on predicting academic success. Resources in Education, ED114049, 1975.

Thomas, W. I. and Znaniecki, F. The Polish Peasant in Europe and America. Boston: Badger, 1918.

Wager, W. Media selection in the affective domain: a further interpretation of Dale's cone of experience for cognitive and affective learning. Educational Technology, July, 1975, 9-13.

Zimbardo, P. and Ebbesen, E. Influencing Attitudes and Changing Behavior. Reading, Massachusetts: Addison-Wesley, 1970.